

Abstract of the Disclosure

A method and apparatus for performing multiple descriptive source coding in which a plurality of homogeneous encoders are advantageously employed in combination with a corresponding plurality of advantageously substantially identical decoders. In particular, diversity is provided to the multiple encoders by modifying the quantization process in at least one of the encoders such that the modified quantization process is based at least on a quantization error resulting from the quantization process of another one of the encoders. In this manner, diversity among the multiple bit streams is obtained, and in particular, the quality of a reconstructed signal based on a combination of multiple decoded bit streams at the receiver is advantageously superior to that based on any one of the decoded bit streams. In accordance with a first illustrative embodiment of the present invention, two Pulse Code Modulation (PCM) coders are employed. In accordance with a second illustrative embodiment of the present invention, two Adaptive Differential Pulse Code Modulation (ADPCM) coders are employed. And in accordance with a third illustrative embodiment of the present invention, two Low-Delay Code Excited Linear Prediction (LD-CELP) coders are employed. In each case, diversity is ensured by an appropriate modification to the quantization process of at least one of the encoders, and the total error may be advantageously reduced when decoded bit streams from both coders are combined at the receiver.